

# Initial program loader download



An initial program loader download has to be carried out if the mains voltage has failed while performing a normal download and the initial program loader has lost its start program in the process.



Electrostatic discharge may damage electronic components. When handling electrostatic sensitive devices, use a static-dissipative mat and a static dissipative wrist strap.

## 1 General information

The initial program loader download on different printed circuit boards of the EvitaXL must be carried out with the BD32.

The initial program loader download with “BD32” loads the following printed circuit boards:

- Pneumatics Controller PCB
- CPU 68332 PCB
- Communication PCB.

## 2 Test Equipment for BD32

Service PC with Windows 95, 98, or NT

- In future, new versions of the service software will not run under DOS or Windows 3.n. However, these restrictions do not apply to version 8.n yet.
- Windows 95, 98 requires at least version 8.n of the service software.
- If Windows NT is used, it is necessary to disable the screensaver, otherwise the software in the medical device could be damaged while downloading.
- If Windows NT is used, it is necessary to create a DOS partition on the PC (a second operating system). At present, this is only required for BD32.
- The service software for BD32 does not function on some IBM laptops.

Service software

For Windows 3.n, 95, 98, or NT.	79 01 831
Service program with BD32 and BD32-compatible operating software for Evita 4/Evita 2 dura	79 10 397
Version 1.0: only for Evita 4	
Version 2.0: for Evita 4 and Evita 2 dura	
Version 3.0: as of April 98, see Service Bulletin No. 3 Evita 2 dura	
Version 4.0: new debug adapter	
Version 5.0: adapted to new Frontpanel PCB	

Debug adapter, old (with reset button)	79 01 980-00 79 01 980
Debug adapter, new (without reset button)	
Cable, reset adapter, Evita 4	79 01 995
RS232 extension with service coding or	79 01 808
RS232 adapter with service coding	79 01 888
Software conversion kit	

The old version of the debug adapter 7901980-00 creates problems when used on fast laptops (Pentium II > 300 MHz). The new version of the debug adapter (which solves these problems) is available under part number 7901980. The new adapter has no reset button. But it has a red LED which indicates the status of the reset line and a green LED which indicates communication activities.

### 3 Installing and using BD32



Boot computers with Windows NT under DOS. On Windows 95, 98, or 3.n computers the program runs only under DOS.

To install the BDM software with “Install“, enter the parallel port and the processor type. If problems should occur during communication between the BD32 program and the processors on the printed circuit boards of the EvitaXL, increase the set value of the port delay. To do so, type “Port LPTx delay value“ in the BD32 program.

Examples of delay values:

386 processor	=	0
486 processor	=	10
Pentium processor	=	200
Pentium II processor	=	300

Enter “Quit“ to exit from the “BD32“ program.



The software has only been loaded if the message “BDFLASH completed without errors“ appears. If the program is aborted before this message is displayed, the port speed should be set in the BD32 program using the “port lptx (delay value)” option.



Always download the current software version afterwards.

## 4 Loading the Software to the Pneumatics Controller PCB

- 1 Switch EvitaXL off.
- 2 Create ESD conditions.
- 3 Open EvitaXL, see Repair Instructions [Opening the unit](#).
- 4 Remove the electronics cable harness connector from the Pneumatics Motherboard PCB.
- 5 Connect the cable reset adapter between the electronics and the Pneumatics Motherboard PCB.
- 6 Plug the debug adapter onto connector X2 of the Pneumatics Controller PCB (pin 1 on 1).



**Do not plug the debug adapter onto the reset adapter.**

- 7 Remove the CO2-Carrier PCB from the EvitaXL in order to suppress the audible alarm.
- 8 Plug the RS232 cable with service coding onto COM1 of the CPU 68332 PCB (enabling the programming voltage).
- 9 Connect the debug adapter to the “LPT1” port on the PC.
- 10 Switch on the PC.
- 11 Switch on the EvitaXL.
- 12 Start the service program with “BD32” from the DOS prompt (C:\ BD32).
- 13 Enter “STOP”.
- 14 7901980 old: Press and hold the “Reset” button on the debug adapter.
- 15 Press the “Enter” key.
- 16 7901980 old: Release the “Reset” button on the debug adapter.

The bottom left display on the PC changes from “MCU running” to “MCU stopped”.

- 17 Enter “do pneuepr” on the PC.

18 Press the “Enter“ key.

End of data transmission will be indicated after approx. 10 minutes, depending on the set port speed.

19 After completion of data transmission enter “Exit“ on the PC.



Always download the current software version to the unit afterwards.

20 Switch EvitaXL off.

21 Leave the PC on.

22 If you want to download the software to the CPU 68332 PCB, DO NOT remove the cable reset adapter between the electronics and the Pneumatics Motherboard PCB.

If you want to download the software to the CPU PCB, as well, using the initial program loader download procedure, DO NOT remove the cable reset adapter between the electronics and the Pneumatics Motherboard PCB. Continue with [5 Downloading software to the CPU PCB](#).

If you do not want to download software to another PCB, continue with the next step.

23 Reassemble the EvitaXL ready for use.

24 Perform the safety check and functional check as per the PMS procedure (Test Certificate).



## 5 Downloading software to the CPU PCB

- 1 Switch EvitaXL off.
- 2 Create ESD conditions.
- 3 Open EvitaXL, see Repair Instructions [Opening the unit](#).
- 4 Remove the electronics cable harness connector from the Pneumatics Motherboard PCB.
- 5 Connect the cable reset adapter between the electronics and the Pneumatics Motherboard PCB.
- 6 Plug the debug adapter onto connector X3 of the CPU 68332 PCB (pin 1 on 1).



**Do not plug the debug adapter onto the reset adapter.**

- 7 Remove the CO2-Carrier PCB from the EvitaXL in order to suppress the audible alarm.
- 8 Plug the RS232 cable with service coding onto COM1 of the CPU 68332 PCB (enabling the programming voltage).
- 9 Connect the debug adapter to the “LPT1” port on the PC.
- 10 Switch on the PC.
- 11 Switch on the EvitaXL.
- 12 Start the service program with “BD32” from the DOS prompt (C:\ BD32).
- 13 Enter “STOP”.
- 14 7901980 old: Press and hold the “Reset” button on the debug adapter.
- 15 Press the “Enter” key.
- 16 7901980 old: Release the “Reset” button on the debug adapter.

The bottom left display on the PC changes from “MCU running” to “MCU stopped”.

- 17 Enter “do cpuepr” on the PC.

18 Press the “Enter“ key.

End of data transmission will be indicated after approx. 10 minutes, depending on the set port speed.

19 After completion of data transmission enter “Exit“ on the PC.



Always download the current software version to the unit afterwards.

20 Switch EvitaXL off.

21 Leave the PC on.

If you want to download the software to the Communication PCB, as well, using the initial program loader download procedure, DO NOT remove the cable reset adapter between the electronics and the Pneumatics Motherboard PCB. Continue with [6 Downloading Software to Communication PCB](#).

If you do not want to download software to another PCB, continue with the next step.

22 Reassemble the EvitaXL ready for use.

23 Perform the safety check and functional check as per the PMS procedure (Test Certificate).

## 6 Downloading Software to Communication PCB

- 1 Switch EvitaXL off.
- 2 Create ESD conditions.
- 3 Open EvitaXL, see Repair Instructions [Opening the unit](#).
- 4 Remove the electronics cable harness connector from the Pneumatics Motherboard PCB.
- 5 Connect the cable reset adapter between the electronics and the Pneumatics Motherboard PCB.
- 6 Plug the debug adapter onto connector X10 of the Communication PCB (pin 1 on 1).



**Do not plug the debug adapter onto the reset adapter.**

- 7 Remove the CO2-Carrier PCB from the EvitaXL in order to suppress the audible alarm.
- 8 Plug the RS232 cable with service coding onto COM1 of the CPU 68332 PCB (enabling the programming voltage).
- 9 Connect the debug adapter to the “LPT1” port on the PC.
- 10 Switch on the PC.
- 11 Switch on the EvitaXL.
- 12 Start the service program with “BD32” from the DOS prompt (C:\ BD32).
- 13 Enter “STOP”.
- 14 7901980 old: Press and hold the “Reset” button on the debug adapter.
- 15 Press the “Enter” key.
- 16 7901980 old: Release the “Reset” button on the debug adapter.

The bottom left display on the PC changes from “MCU running” to “MCU stopped”.

- 17 Enter “do commep” on the PC.

18 Press the “Enter“ key.

End of data transmission will be indicated after approx. 10 minutes, depending on the set port speed.

19 After completion of data transmission enter “Exit“ on the PC.



Always download the current software version to the unit afterwards.

20 Switch EvitaXL off.

If you do not want to download software to another PCB, continue with the next step.

21 Disconnect the cable from the PC.

22 Reassemble the EvitaXL ready for use.

23 Perform the safety check and functional check as per the PMS procedure (Test Certificate).

## 7 Loading the software to the Graphic Controller 8 PCB

It is currently not possible to download the initial program loader to the Graphic Controller 8 PCB. In case of failure, replace the complete Graphic Controller 8 PCB.